**ESSC STAKEHOLDERS COMMITTEE MEETING**
**Old Livestock Bldg, Room 105**
**April 23, 2008    1- 3 PM**

**Minutes**

Attendees: Al Parisian-MT State Fund, Sandy Leyva-MT State Fund, Larry Fasbender-Justice, Dick Clark-State CIO, Mike Boyer-ESSC Project Manager, Mike Krings-ESSC Project Team, Mike Bousliman-Transportation, Joe Triem-A&E Division, Candice Stout-A&E Division, Dan Forbes-PHHS, Lois Menzies-Supreme Court, Amy Carlson-OBPP

**Introductions & Opening Remarks** (Dick Clark, State CIO)
Introductions were made around the table.  Dick stated that this meeting is to make sure everyone is kept apprised of how things are flowing.

**Overview of ESSC Project** (Mike Boyer, Project Director)
Mike refreshed everyone on what has transpired up to this point in time and discussed the four ESSC business objectives:  Security, Continuity of Government, Improved Services and Efficiency of Services.  He reviewed the key features needed, including physical security, a redundant infrastructure, and energy efficiency.  Who has access to the new center will be managed very carefully.

**Functional Design Progress**
A modular design is being considered for ease and low cost of expansion with the concept of "blow out" walls and use of LEED "Green" characteristics.  The experience of the Uptime Institute, with their tier structure, indicates that the probability of two Tier III sites both being down at the same time is .000004%.  Mike emphasized that this is the power and cooling aspect only.  Regarding power redundancy, there will be two different generator power sources.  Servers have dual power capabilities to make sure there are two power paths all the way to the individual piece of equipment so there won't be a single point of failure.  This is very important, but it's also very expensive.

"Day One" ITSD needs for the Helena site, according to consultants, is about 2,500 sq. ft. of raised floor in a 15,000 sq. ft. building.  Total Site Solutions (TSS) has done growth modeling and has forecast this square footage.  In Miles City, about 2,000 sq. ft. of raised floor would be needed for critical workload in an 8,000 sq. ft. building.  If we took everything that the agencies in Helena have, we would need about 12,000 sq. ft. to accommodate the growth out to the year 2016.  This is based on optimal rack configurations and an open floor approach (no cages).  The 12,000 sq. ft. is just the raised floor.  If we put everyone in the data center in 2010, based upon the current equipment, it would take up about 4,500 sq ft.  The 12,000 sq. ft. is projecting from 2010 to 2016.  Numbers were based on the inventory of systems that were reported to ITSD for the Biennial Report and on optimizing use of the space.

Someone asked about consolidation and virtualization:  "If all of the equipment as it exists right now was moved, what would the square footage look like?"  TSS has been asked how it would look organization by organization, what the needs might look like at the Day One level, so it can be discussed how to populate this state data center.

Another question was, "Given the numbers, what did TSS base this on?  If you're at 5,000 right now and you're going to be at 12,000 in 2016, in six years you've increased your required square footage by 50%.  Are they anticipating that's a growth in government?  What about space to store all this?"  Mike explained that TSS looked at the track record of what we've seen on the size and complexity of systems to support the different business processes.  They are basing this on actual experience of how fast these servers are growing.  They look at historical trends and project them forward, and they work with the manufacturers to understand what trends are coming in terms of how things will be packaged, which brings up heat and power requirements, as well as the space impact.  They consider those factors along with linear growth rate.

N+1 will be used for electrical and power infrastructure to minimize the cost of redundancy. The objective is to provide non-stop processing for the critical workload. There will be an operations center in Helena that will manage both sites. The sites will not be certified, but both sites will have Tier III design characteristics.

**Energy Innovations**
1. Passive Ducted Cabinets – Most modern data centers use what's called a hot aisle/cold aisle approach for servers that is expensive and inefficient. Passive Ducted Cabinets are enclosed cabinets where it doesn't matter what the temperature of the room is as long as the insides of the cabinets are kept at the right temperature. Cool air is drawn through the front and exhausted through a duct into the warm air return, done passively (no fans). The cabinets add cost, but do an outstanding job of isolating hot and cold air and have the possibility of reducing cooling costs by 60%. Payback is about 9 months.

2. Kyoto Cooling Wheel – This takes the warm air and brings it through a huge wheel exposed to outer air. It cools the warm air inside and circulates it back. Except for the energy used to turn the wheel, it's essentially free cooling. One wheel would be needed per megawatt and we would need a couple of them. Payback is less than a year.

Items of Interest:
Restricted access – biometric security (palm reader) is becoming reliable and successful. There will be no access to the raised floor unless there is a documented emergency taking place or the person has an approved Change Request.

The 24" raised floor will have 150 KW of power per sq. ft. (homes have a little under 10). The data center in the Mitchell building was designed at 20-25 KW per sq. ft. This will be six times the power.

The operations center will help us integrate monitoring systems, managing incidents, handling problems, and the change management process much more effectively and proactively.

Helena Site: There is general agreement with MDT management on the site selected. It's a site that's compatible with the future plans MDT has for their campus area and there is room for expansion. It's in close proximity to existing buildings and there is potential to recover waste heat generated by the data center for MDT buildings. An MOU is being developed.

Eastern Site: – Mike Boyer reviewed the three sites that had been considered – Forsyth, Miles City and Billings. He explained the site assessment categories used to score each site and how the selection was determined. The site selected is in Miles City, located on Pine Hills property. Flood plain redefinition is being done in Miles City; however, this site is out of that area.

Major activities and current targets:

July '08 – early procurement of equipment (generators/switch gear/UPS)
August '08 – Both sites going to bid
September '08 – Ground breaking at both sites
Construction time estimate: Eastern site: 9-12 months     Helena site: 12-16 months

**Issue List / Risk Register** (Mike Boyer)
Mike reviewed some of the current issues:
* The impact of having to pay for land has been worked around to being cost-neutral.
* Square footage is being adjusted to conform to the budget while maintaining necessary features.
* Relocation cost is higher than anticipated. Funding from different sources will be explored.

Mike Bousliman asked about funding for entities not in the data center and the cost associated with getting them there. For example, if it's a substantial cost to get in the new data center, what is the

benefit of getting in there, rather than just using it for disaster recovery purposes?  He stated that if it's a 50-year return on MDT's investment, they may be better suited where they are.  What is the cost to pack up and physically move, including connectivity associated with the move, vs. the benefit?  Amy Carlson explained that the State of Montana is building a state-of-the-art data center for a reason.  It is an enhancement of capability; it has a higher level of redundancy.  It's being built for all entities to participate in; it's not an option.  It's not IF it's beneficial, but WHEN it is.  Amy suggested that agencies figure out their costs and decide when it makes sense to transition from their current data centers to the new data center.  Mike Bousliman asked if there are plans from OBPP to support or fund new clients in the data center, or will each agency have to find a way to make it happen?  Amy said OBPP is currently working out the economics of this.

**A&E Perspective on the ESSC Project & Next Steps** (Joe Triem, A&E Division)
Joe Triem explained that the budget has been challenging.  Electrical and mechanical systems are the big costs.  A&E is continually balancing the budget against the needs and has been trimming up square footage.  The building will be built for expansion and a tripling in size of the raised floor.  A&E has finished the programming phase or design center requirements analysis.  It establishes a methodology and goals that play into redundancy, establish a basis of design, and a transition plan.  A&E has developed some spacial block plans, technology growth projections, mechanical and electrical line diagrams, technology (migration and acquisition) and construction budgets, and proposed project schedules.

The second phase is the conceptual and schematic design.  Site-specific alternative building layouts are being evaluated to determine how to grow on each site.  Spacial orientations and mechanical systems are being analyzed and finalized.  What A&E needs from the stakeholders is a review procedure and a small core decision group.  In each phase, A&E needs to return a timely consolidated response to the consultants.  The deeper we get into design, a change is much more expensive.  It was emphasized that, rather than have a consensus environment, a group of folks is needed who can make decisions and stick with them and not change their minds.  A deadline is needed for reaching the point of "this is where we're going and this is what we need to do."  ITSD will help coordinate the user review and user response to A&E's design phases.  Dick Clark and Mike Boyer will decide how to incorporate stakeholder interest.  The reviews will not be ultra technical; they will be more oriented towards configuration (i.e., is this room big enough for people to unbox things?).  It was suggested that 6-8 folks be involved for reviews, with multiple work units under them offering input.

**Agency Implementation Considerations**:
Mike Boyer stated that there are two types of potential strategies:  (A) move agency by agency or (B) look at the business issues coming out of COOP/COG, identify those critical systems, and put in place a plan to accommodate those systems.  TSS will look at an agency-by-agency breakout of what their requirement might look like and that will help us decide if A or B is practical.  Before the next meeting, a decision process will be developed.

The eastern facility is designed to support peer site redundancy for critical systems data and servers.  Things will be done in a couple of steps so everyone learns how to manage things across diverse remote situations, how to manage data synchronization, and how to manage failover at the application level.  ITSD is considering what services will be offered.

ITSD's current approach is to move to the Helena ESSC first.  This would entail approximately four weekend moves over 3-4 months.  Budget considerations:  Trimming is being done without sacrificing key features.  Alternative funding is being sought.  Agencies planning to move some portion or all of their data center should think about what funding requirements they might need.  An incremental approach to moving might help with agency concerns.  ITSD's objective is to provide service, not control.

Meeting adjourned at 2:50 p.m.